UNITED STATES APPLICATION

FOR

GRANT OF LETTERS PATENT

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for

<u>**AUTOMATED SYSTEM & METHOD FOR PATENT DRAFTING &**</u>

<u>**TECHNOLOGY ASSESSMENT**</u>

1   AUTOMATED SYSTEM & METHOD FOR PATENT DRAFTING & TECHNOLOGY

2   ASSESSMENT

3   Background of the Invention

4   (1) Field of the Invention

5   The present invention relates generally to patent application drafting and

6   technology assessment and, more particularly, to an automated system and method for

7   patent application drafting, issued patent assessment, and technology assessment.

8   (2) Description of the Prior Art

9   Typically, patent applications and assessments of issued patents have been done

10   manually, i.e., an inventor or patent practitioner independently outlines and drafts

11   specification text and drawings to provide an adequate description and disclosure of an

12   invention, including claims to subject matter that is patentably distinct from prior art

13   references in such a manner as to meet the requirements for obtaining letters patent by the

14   appropriate governmental authority or agency. Generally, each patent drafter constructs

15   the text-based description and claims based upon an individual frame of reference, which

16   is based upon experience, technical understanding of the invention, legal requirements,

17   and personal writing style. Because these factors are substantially influenced by

18   subjective perspective, for any given invention, variation as to patent drafting technique

19   and substance of the text is common among inventors and patent practitioners. Thus,

20   consistency of practice among patent drafters is not well established. Additionally,

21   training new practitioners also lacks consistency, based upon the variation of drafting

22   techniques that are taught by experienced practitioners. Therefore, a systematic approach

23   to patent drafting is needed to provide a consistent and reliable means for drafting patent

1   applications and training others to do the same among existing patent drafters,

2   particularly among professional practitioners.

3   Prior art patent drafting aids may employ computers, as set forth in US Patent No.

4   6,049,811 issued April 11, 2000 to Petruzzi, et al., in order to provide a means for storing

5   information related to an invention, including common subcomponents of a patent

6   application, namely features and benefits of the invention that define the invention over

7   prior art, primary elements of the invention that define the invention over prior art,

8   secondary elements that are important but that do not necessarily define the invention

9   over prior art, and substitute elements of the invention. These subcomponents are stored

10   by a computer, with the descriptive text relating to each of them being provided by the

11   patent drafter. A final patent application is compiled by combining these drafted sections

12   with predetermined text. However, this computer-based type of prior art merely serves to

13   prompt the user for information to be entered into a patent application and automatically

14   draft a patent application therefrom, without providing any sort of outline or preview of

15   the patent application substance so that editing may be done in an early stage of patent

16   drafting, saving time and avoiding inconsistencies within the patent that is eventually

17   drafted. Furthermore, there is little flexibility of form or format within the patent

18   application being generated with computer assistance; the user does not have an

19   opportunity to define relationships between and among subcomponents that may have a

20   significant effect upon patentability as well as the user's understanding of the invention

21   that is claimed for the purposes of enforcement or explaining it to others.

22   Thus, there remains a need for a systematic approach to patent drafting having a

23   consistent and reliable means, preferably automated or assisted by automation, for

1   drafting patent applications and training others to do the same among existing patent

2   drafters, particularly among professional practitioners, in order to ensure patent quality

3   and to provide a common language or means for communicating the substance and form

4   of a patent application and/or issued patent and/or technology that is being assessed.

5   Also, there remains a need for an automated version of the system and method for

6   patent application drafting, issued patent assessment, and technology assessment that

7   provides increased efficiency via reduced time for formatting and substantive text and

8   diagrammatic representation construction of the same. Furthermore, there remains a need

9   for an automated system and method for patent application drafting, issued patent

10   assessment, and technology assessment that provides an outline or preview of the patent

11   application substance so that editing may be done in an early stage of patent drafting,

12   saving time and avoiding inconsistencies within the patent that is eventually drafted.

13   Also, there remains a need for such a system and/or method having flexibility of

14   form or format within the patent application being generated with computer assistance

15   such that the user(s) has an opportunity to define relationships between and among

16   subcomponents that may have a significant effect upon patentability as well as the user's

17   understanding of the invention that is claimed for the purposes of enforcement or

18   explaining it to others. Additionally, there remains a need for such a system and/or

19   method that permits a mulitplicity of users to work on the same patent or technology

20   simultaneously or in series, which is permitted only by a common understanding of the

21   format, the substance, and the language or terminology selected by the user(s) to define

22   the invention, patent, and/or technology such that little or no additional communication is

1 required among co-users or collaborators in order to function efficiently and effectively

2 together.

3 Summary of the Invention

4   It is an object of the present invention to provide an automated system and

5 method for patent drafting, issued patent assessment, and/or technology assessment that

6 provides increased efficiency via reduced time for formatting and substantive text and

7 diagrammatic representation construction of the same.

8   It is another object of the present invention to provide a system and method for

9 patent drafting, issued patent assessment, and/or technology assessment having a

10 consistent and reliable format and process to ensure patent quality and to provide a

11 common language or means for communicating the substance and form of a patent

12 application and/or issued patent and/or technology that is being assessed.

13   Still another object of the present invention is to provide an automated system and

14 method for patent application drafting, issued patent assessment, and technology

15 assessment that provides an outline or preview of the patent application substance so that

16 editing may be done in an early stage of patent drafting, saving time and avoiding

17 inconsistencies within the patent that is eventually drafted.

18   Also, another object of the present invention is to provide an automated system

19 and method for patent application drafting, issued patent assessment, and technology

20 assessment that providing flexibility of form or format within the patent application being

21 generated with computer assistance such that the user(s) has an opportunity to define

22 relationships between and among subcomponents that may have a significant effect upon

23 patentability as well as the user's understanding of the invention that is claimed for the

24 purposes of enforcement or explaining it to others.

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1   In a preferred embodiment of the present invention, a system for patent

2   application drafting, issued patent assessment, and technology assessment includes a

3   computer having input devices for at least one user to enter information relating to

4   components of an invention in a hierarchical and relational categorization using software

5   that automatically generates a relational, diagrammatic representation of the patent or

6   technology being assessed that is output in a format that is viewable and modifiable by

7   the user(s). Subsequently, the user(s) may enter additional, more detailed information

8   that provides a basis for textual representation of the patent or technology that is being

9   drafted or assessed; this additional information is associated with and/or connected to the

10 diagrammatic representation, e.g., via an automatic link or a hyperlink, that permits the

11 user(s) to switch between views of the diagram and the text-based detailed description of

12 components of the patent. Subsequently, the components of the patent being drafted are

13 formatted into a text-based arrangement that is suitable for filing as a patent application,

14 with additional modifications, transitions, and/or standard language capable of being

15 introduced prior to printing or electronic conveyance of the patent application for filing.

16   Similarly, in a preferred embodiment of the present invention, a method for using

17 the aforementioned system is provided, including the steps of at least one user inputting

18 information to a computer or other automated electronic device, the information being

19 ordered in a hierarchical and relational categorization, the computer or device using

20 software to automatically generate a relational, diagrammatic representation of the patent

21 or technology being assessed, outputting the information in a format that is viewable and

22 modifiable by the user(s), automatically generating a text-based format of the information

23 consistent with the relational, diagrammatic representation of the information that is

1   consistent with a format that may be submitted for filing a patent, modifying the text-

2   based format, as required, and outputting a printed or electronic version that may be

3   conveyed to a third party for review and/or patent filing.

4   These and other aspects of the present invention will become apparent to those

5   skilled in the art after a reading of the following description of the preferred embodiment

6   when considered with the drawings, which constitute a part of the specification and

7   include exemplary embodiments for the purpose of facilitating explanation of the present

8   invention, which may be embodied in various forms.

9   Brief Description of the Drawings

10   Figure 1 is a block diagram of a patent diagram of the system constructed according to

11   the present invention.

12   Figure 2 is a block diagram of an alternative embodiment of the present invention.

13   Detailed Description of the Preferred Embodiments

14   In the following description, like reference characters designate like or

15   corresponding parts throughout the several views. Also in the following description, it is

16   to be understood that such terms as "forward," "rearward," "front," "back," "right,"

17   "left," "upwardly," "downwardly," and the like are words of convenience and are not to

18   be construed as limiting terms.

19   Referring now to the drawings in general, the illustrations are for the purpose of

20   describing a preferred embodiment of the invention and are not intended to limit the

21   invention thereto. In the following description, like reference characters designate like or

22   corresponding parts throughout the several views. Also in the following description, it is

23   to be understood that such terms as "forward," "rearward," "front," "back," "right,"

1   "left," "upwardly," "downwardly," and the like are words of convenience and are not to

2   be construed as limiting terms.

3   Referring now to Figure 1, a block diagram of a hierarchical component

4   categorization according to the system of the present invention, generally referenced as

5   10, is shown. The method begins with the inputting of patent or technology elements or

6   components, generally referenced as 12, into a data processor, such as a computer, by at

7   least one user via an input device, e.g., computer keyboard, mouse, voice, etc. or

8   combinations thereof. These components or elements are divided into key components or

9   key elements, including the title 14, function or objective of the technology or invention

10   16, at least one key component 18, and overall benefit of the invention. The at least one

11   key component 18 of the invention are those essential for functioning of the invention

12   and those that are necessary for providing patentable distinction over the prior art 20, if

13   any. Also, information relating to background and problems 22 may be input into the

14   system as well. These initial or primary inputs are automatically configured into a

15   hierarchical and relational diagrammatic format, which is generated by a software

16   program and which is capable of being viewed by the at least one user on an output

17   device, such as a computer screen, printed document or other tangible form. The at least

18   one key component 18 may also have at least one subcomponent 24 that is relationally

19   and hierarchically connected and configured automatically in the diagrammatic

20   representation of the invention, patent, or technology in association with the at least one

21   key component 18. Additionally, the at least one subcomponent 24 may also have at

22   least one sub-subcomponent 26 that is relationally and hierarchically connected and

23   configured automatically in the diagrammatic representation of the invention, patent, or

1 technology in association with the at least one subcomponent and the related at least one

2 key component 18. As best shown in Figure 2, a mulitplicity of key components,

3 subcomponents and sub-subcomponents may be required for an adequate and complete

4 description of the invention to be patented, patented invention, or technology being

5 assessed. Each key component, related subcomponent, and related sub-subcomponents

6 are input by the user(s) and automatically organized in a hierarchical and relational

7 component categorization diagram that may be reconfigured later by the user(s) and

8 updated automatically in the viewable output. The presentation of the diagram may be

9 vertically oriented, horizontally oriented, or oriented in some other manner without

10 departing from the organized hierarchical and relational categorization and configuration

11 of the components considered within the scope of the present invention.

12 Other information may be advantageously included with the diagram 10, such as

13 practitioner file number, client identifier, date, author, etc. in a predetermined location on

14 the viewable output device or tangible representation or electronic format version of the

15 diagram.

16 Furthermore, the at least one key components 18 do not necessarily need to be

17 components of a specific embodiment as conventionally recognized in a patent

18 application, but at least may be components generally required for the invention or

19 technology to be functionally described in a concise and complete manner, as well as

20 required for at least one broad claim of a patent application. In many cases, the at least

21 one key component can be described functionally rather than by a specific embodiment,

22 such as a data processor versus a personal computer. The at least one key component

23 may then be further described or delimited by inputting subcomponents or other

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1   delimiters subsequent to the entry or input of the at least one key component into the

2   system. These subcomponents may then also be further described or delimited by

3   inputting their subcomponents. This process can be continued until the at least one key

4   component is completely described. The description or delimiting process consists of

5   naming the subcomponent and adding the specific function and/or benefit or particular

6   commercial usefulness that the subcomponent provides.

7   The at least one key component can be multiple key components. These may then

8   be organized according to importance, function, order of use in the invention, novelty, or

9   according to any other prioritization system that the patent drafter desires to use.

10   The overall benefit or usefulness of the invention is also inputted as a key element

11   of the invention. This benefit or usefulness may be limited to the improvement provided

12   by the invention, or may be a more thorough description of the function of the invention

13   along with the enhancement of the function provided by the invention.

14   The inputting of these elements need not follow the order described here. In fact,

15   some drafters of technology descriptions and/or patent applications might prefer to

16   proceed with another order of inputting, such as beginning with a subcomponent and

17   further deconstructing the subcomponent according to its function until the drafter

18   believes he/she has arrived at a key component that cannot be further deconstructed.

19   Alternately, the drafter may prefer to deconstruct a subcomponent until he/she believes

20   that further deconstruction will generate an embodiment that cannot be patented, such as

21   an embodiment that is not novel, useful, or non-obvious.

22   Simultaneous or subsequent to the data inputting process, the system

23   automatically organizes the inputted components and their subcomponents into a

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1   hierarchy based upon the user(s) inputs; the drafter may override or modify the initial

2   hierarchical order or organization thereafter. This hierarchy is one in which the

3   component and its subcomponent(s) are linked in a dependent manner or parent/child

4   relationship. The components are thus linked such that they can be outputted in a format

5   that preserves the hierarchy established by the drafter. The method also allows for the

6   multiple hierarchy charts, such that multiple charts can be display alternately or

7   simultaneously. This function can be important if a patent drafter is unsure of the

8   hierarchy of components. Thus, optional hierarchies can be generated with which the

9   drafter can query others as to which is the preferred hierarchy. The multiple charts can

10   be made by duplicating the original chart and then varying only the elements to be

11   changed.

12   The hierarchy may next be outputted in various formats and to various areas of a

13   patent draft. In a preferred method according to the present invention, the hierarchy of

14   elements is outputted in an outline format, a claims format, and a diagrammatic format.

15   The outline format is such that a patent specification can be written from the

16   outputted outline. As shown in Figure 2, the outline, generally described as "Title of

17   Invention", is outputted in a format that is viewable by the user(s). Each component of

18   the outline may then be described in further detail such that a complete and enabling

19   description of the invention is made; advantageously, this additional detail is

20   automatically connected, associated, or linked to one of the components shown within the

21   diagram. More particularly, the text-based description providing additional detail for

22   each key component, subcomponent, and sub-subcomponent may be viewed by the

23   user(s) by selecting, e.g., pointing and clicking with a mouse or other selection device

1   connected with a computer or electronic data organizer capable of running the software

2   program associated with the system, the particular key component, subcomponent, and

3   sub-subcomponent and being automatically connected to a viewable version of the text-

4   based description associated therewith. Modifications to the text-based information input

5   by the user(s) is modifiable at any stage of the method of using the system, once the

6   information has been initially inputted. This text-based description may then be used as

7   the specification of the invention for a patent application or may be used simply to

8   describe an invention for purposes of disclosure or publication; it is automatically

9   assembled into a text-based version of the description of the invention that integrates

10   each key component, subcomponent, and sub-subcomponent in a related, logical, and

11   appropriate order such that the final description is capable of being submitted as a patent

12   application. Additional modifications may be made to the text-based description, once

13   integrated into a single text-based document in order to provide appropriate and/or

14   necessary transition, linkage, coherency, and/or standard text or language required for

15   patent applications by a particular governmental agency or authority.

16   When the document is completed, the outline may also be outputted for use as a

17   table of contents for the document, including hyperlinking the items in the table of

18   contents to the appropriate sections of the document. Thus, complex technologies can be

19   outlined and described and a table of contents generated with relative ease. Hyperlinking

20   of the table of contents and the sections of the document allows for rapid perusal of the

21   document.

22   Additionally, the information that is inputted by the user(s) is also automatically

23   generated into a claims format that is included in the patent application text-based

1   document set forth in the foregoing. This automatically generated claims format is one

2   that preserves the parent/child or hierarchical relationship of the components established

3   in the diagram. This parent/child or hierarchical relationship may be described by using

4   an outline format or simply by the physical relationship between the claims, such as by

5   listing a child component under its parent component and indenting the child component

6   from the margin more than its parent component. Additionally, the claims format that is

7   generated automatically by the software may include a detail of the component, such as a

8   description of the additional function and/or specific benefit conferred by the component

9   to the invention. In any case, the claims format that is automatically generated from the

10   diagram and incorporated into the text-based description document is designed to

11   comport with government requirements for patent applications. The claims are output

12   into a viewable output, as with the diagram and text-based description, such that the

13   user(s) may view, modify, and review them.

14   Advantageously, the claims output is consistent across technology applications.

15   Thus, regardless of the type of technology that is the subject of the invention, and

16   regardless of the experience of the user(s) or practitioner using the system and method

17   according to the present invention, the claims are automatically generated in a format that

18   conforms to the requirements of a specific patent or intellectual property organization,

19   such as the United States Patent and Trademark Office or with World Intellectual

20   Property Organization. Standard formatting, such as preambles, may also be generated

21   from the inputs and are selectable and modifiable by the user(s) at any point after the

22   initial inputting of the information. Also, standard format claims language may be

23   inserted prior to the description of a component. For example, in figure 3, the second

1   claim states "The method according to claim 1, wherein the inputted technology elements

2   are selected from the group consisting of Title, ≥ 1 key component, function, overall

3   benefit, and combinations thereof." In this claim, the phrase "The method according to

4   claim" and "wherein the" are standard format claims language that is repeated in each of

5   the dependent claims. Therefore, the method may automatically include these and other

6   phrases in the claims. Because different formats exist for standard format claims

7   language, phrase may be entered or selected prior to generating the claims. Additionally,

8   the claims may be outputted such that they are numbered and they contain in them the

9   number of their parent claim where appropriate.

10   Additionally, the output may be formatted such that multiple dependent claims are

11   allowed or not allowed, according to the preference of the drafter, patent office, or other

12   authority. Likewise, multiple-multiple dependent claims may be used, if desired or

13   required.

14   Finally, the technology matrix diagram, along with the text-based information,

15   associations therewith, including links and hyperlinks, and integrated text-based

16   document, may be outputted in a tangible format, either on a computer screen or other

17   electronic data processor or device's viewable output, printed by a peripheral printing

18   device connected thereto, transmitted electronically to another device or third party, or

19   saved in an electronic format, including on the device or on a portable electronic data

20   storage device, e.g., palm-based organizer or PDA, diskette, CD-rom disk, and the like.

21   This diagram is a visual representation of the technological hierarchy of the technology

22   or invention. This diagram may be the same diagram used to generate the technological

23   hierarchy or it may be a different diagram. For example, the hierarchy may be outputted

1   in a 2-dimensional format such as a triangular format, a circular format, or an outline

2   format, or a 3-dimensional format, such as a spherical, conical, or pyramidal format.

3   Frequently, a description of a technology involves many elements, and a

4   diagrammatic representation of these elements may not fit in a legible manner entirely on

5   standard A4 or letter paper or on a presentation screen, or slide. In such cases, sections of

6   the diagram can be identified for exporting to a separate sheet, slide screen, or other the

7   like. In the cases of patents with multiple independent claims, it may be most appropriate

8   to represent each of the independent claims separately.

9   Finally, the components of the diagram may be linked to the section of the

10   specification that describes them. This linking allows a person to get an overall view of

11   technology, then read in more detail about a particular component of interest by

12   "jumping" to the linked section of the specification.

13   Also, jumping back and forth between specification, claims, and diagram, because

14   often the document drafter may think of another component or better ordering of

15   components after having started writing the specification. This allows for incorporation

16   of added elements into claims, such that they are not missed. Also, copy and pasting of a

17   specification element into the technology hierarchical matrix will generate a hyperlink

18   between diagram and spec and also between spec and table of contents when matrix is

19   exported to table of contents.

20   The software of the present invention is designed and configured to provide a

21   graphical interface for diagramming the structure of intellectual property in a patent

22   application or for assessment of technology or issued patents and for automatically

23   creating text-based description linked to components in the diagram and integrating those

1   descriptions into a coherent specification and claims of a patent application. The software

2   also exports the diagram and text-based description into other software programs that

3   support diagrams and text, such as Microsoft Word software and the like.

4   Also in a preferred embodiment of the present invention, a method for using the

5   aforementioned system is provided, including the steps of at least one user inputting

6   information to a computer or other automated electronic device, the information being

7   ordered in a hierarchical and relational categorization, the computer or device using

8   software to automatically generate a relational, diagrammatic representation of the patent

9   or technology being assessed, outputting the information in a format that is viewable and

10   modifiable by the user(s), automatically generating a text-based format of the information

11   consistent with the relational, diagrammatic representation of the information that is

12   consistent with a format that may be submitted for filing a patent, modifying the text-

13   based format, as required, and outputting a printed or electronic version that may be

14   conveyed to a third party for review and/or patent filing.

15   At least the following primary steps of the method according to the present

16   invention are necessary:

17   •   at least one user entering information for diagram elements

18   •   the system automatically generating a visual diagram of the elements of the

19   invention in a hierarchical relational diagram

20   •   at least one user entering diagram verbage by drafting the text-based detailed

21   description or verbage of the specification section of the application for each key

22   component, subcomponent, and sub-subcomponent of the diagram

1   • viewing the diagram and text-based information in a tangible medium, including

2   but not limited to a viewer screen on an electronic data processor or computer, a

3   printed document, and the like.

4   In addition to the primary steps by the user(s) the user(s) may also input additional key

5   components, subcomponents, and/or sub-subcomponents. Furthermore, the user(s) may

6   manipulate or move any previously inputted key components, subcomponents, and/or

7   sub-subcomponents by shifting up and shifting down from the diagram, either via menu

8   or directly on the diagram moving elements up and down in order among similarly

9   ranked sibling elements. Shifting up and down conserves all sub-elements of the moved

10 element and automatically updates the diagram as well as any related text-based

11 description associated with each component. Dragging an element and dropping it on top

12 of another element will move the dragged to element and make it a sub-element of the

13 element it is dropped on. An element cannot be moved to one of its own child elements.

14 Dragging and dropping conserves all sub-elements of the moved element.

15   Entering additional specification and/or claims text or verbage may be done

16 directly in the text-based portion of the document by the user(s) at any time after the

17 initial text-based portion has been inputted by the user(s). The automatic claims

18 construction includes the creation of prefixes or preambles or other introductory

19 langauage, suffixes or termination language, transition or connective language relating

20 parts within the claim or between/among claims, all of which are editable by the user(s);

21 also, custom claim text or verbage may be input when prompted automatically or later

22 during editing by the user(s).

1   As can be seen, several benefits are associated with drafting a patent in a manner

2   consistent with a preferred embodiment according to the present invention. Most

3   notably, rapid drafting of patents and thorough effective identification, description, and

4   organization of the patent components is provided by the system and method according to

5   the present invention. Furthermore, editing is facilitated at any stage of the process of

6   drafting a patent application or technology assessment; advantageously, the editing of the

7   diagram at an early stage in the process is possible, thus reducing or eliminating time-

8   consuming reorganization and editing at later stages in the process. Also, editing is

9   facilitated in that from the diagram an editor can determine where in the specification to

10   edit a specific claim or text-based portion of the specification and be automatically

11   transferred to that portion of the text-based document, simply by accessing it via the

12   appropriate key component, subcomponent, and/or sub-subcomponent within the

13   diagram, as well as editing the diagram, which automatically edits the relationship within

14   the text-based portion of the integrated document, including location within the

15   specification description and claims.

16   Also advantageously, the system and method of the present invention as set forth

17   in the foregoing provide ease of refreshing the at least one user's memory of the patent or

18   technology, for example when revisiting claims during the prosecution phase of a patent

19   application, or when consideration of possible infringement or enforcement of the patent

20   is required; this saves time and also permits a multiplicity of users to access this

21   information with similar ease, since the format, language, and use of the system provides

22   for consistency among users and across technologies. Furthermore, the diagrammatic

23   representation of the components in a hierarchical and relational manner provides a

1 useful tool that facilitates the description and explanation of the scope and substance of

2 patent claims and intellectual property covered by patent to interested third parties,

3 including inventors (where a practitioner drafted the application on his/her behalf),

4 management and decision-makers within a company who require quick summaries of

5 patents and technology for business decision-making, stakeholders and investors in the

6 patent and/or technology, enforcers of the patent, and the like.

7   Since many patents and technologies being drafted and/or assessed are complex

8 but need to be considered by a variety of individuals having various levels of technology

9 and legal understanding, the diagrammatic representation of the patent and/or technology

10 provided by the present invention is easier to comprehend in a shorter period of time

11 without having to review text-based descriptions of the same.

12 EXAMPLE

13   As set forth in the foregoing, the software of the present invention is designed and

14 configured to provide a graphical interface for diagramming the structure of intellectual

15 property in a patent application or for assessment of technology or issued patents and for

16 automatically creating text-based description linked to components in the diagram and

17 integrating those descriptions into a coherent specification and claims of a patent

18 application. The software also exports the diagram and text-based description into other

19 software programs that support diagrams and text, such as Microsoft Word software and

20 the like.

21 PROTOTYPE PROGRAM

22   The software of the system according to the present invention is designed and

23 established to aid in diagramming intellectual property, displaying and manipulating the

24 diagram in a way helpful to the patent drafters and clients, and converting the diagram

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1   into an actual patent application. The beta version set forth in this example was

2   programmed in C++ using MFC and the Microsoft Visual C++ Standard Edition

3   programming environment; other languages, e.g., Java, may alternatively be employed

4   without departing from the scope of the present invention. The software of this example

5   is capable of running on Microsoft Windows 2000, ME, NT 4.0, and 98; it requires under

6   10 MB hard disk space and under 8 MB of free RAM and is implemented as desktop

7   application software. The software was developed using Microsoft Visual C++ and

8   MFC, which permits it to interact well with the Windows operating system and Microsoft

9   Office applications.

10   The following description of a software program developed as a prototype version

11   of the software according to the system of the present invention is set forth by way of

12   example and not of limitation. A prototype program was developed and implemented as

13   a Windows MFC application using Microsoft Visual C++ as the primary programming

14   environment. Other programming languages and systems may be advantageously

15   employed without departing from the scope of the present invention, as it is described

16   and claimed herein. The prototype program, set forth for example and not limitation,

17   supports, at a minimum:

18   • A MS Windows application that integrates with the Windows desktop

19   environment

20   • Entry of the patent or technology matrix diagram in a text-based, non-graphical

21   format

22   • Entry of the patent or technology matrix diagram in a graphical format

23   • Basic sorting, editing, and rearranging of MATRIX elements

1 • Basic print functions

2 • Basic file storage and retrieval to allow saving and opening of MATRIX

3   documents

4 • Basic patent draft exporting

5 • A rough draft of a users manual

6 Other features are optional but advantageous for the software of the system according to

7 the present invention, including:

8 • Enhanced Graphical User Interface (GUI) with user-friendly buttons, menus, help

9   screens, and toolbars

10 • Incorporation of logos and icons

11 • Automatic linking or hyperlinking between the diagram components and text-

12   based detailed description of those components, including prior art summaries and

13   patents provided in a connectable on-line database

14 Other program features of the software may advantageously include:

15 • Enhanced and streamline GUI that provides a professional interface complete will all

16   standard features of modern Windows applications (cut and paste, multi-document

17   support, multiple file export formats, etc.); note that LINUX or other operating

18   system structures are contemplated within the scope of the present invention

19 • Help dialogs accessible within the program operation by user(s)

20 • Graphical "bubble diagram" views of the diagram and document, complete with

21   ability to click and drag elements to new locations; from this view user(s) may

22   intelligently move elements around to make diagram aesthetically pleasing without

23   departing from the hierarchical and relational structure of the component diagram

1   •   Enhanced sharing and editing features that permit multiple users, including

2   practitioners, clients and law firms to concurrently develop or view the diagram

3   and/or document

4   <u>Data Structure</u>

5   Each element of the diagram is implemented as an object of an element class

6   within the prototype software example according to the present invention. The diagram

7   itself takes the form of a data tree. A header object that contains specifications of the

8   diagram, including job number, client name, and title information is provided. The header

9   object also contains a pointer to the first key component of the diagram. For the purposes

10   of diagramming, key components are not different from regular elements, unless so

11   identified by the user(s). According to the hierarchical relationship of components, each

12   parent element or key component contains a pointer to the first child element or

13   subcomponent of that element and the next sister element of that element. Thus the data

14   structure of a very simple diagram may be viewed, in one configuration, as follows in

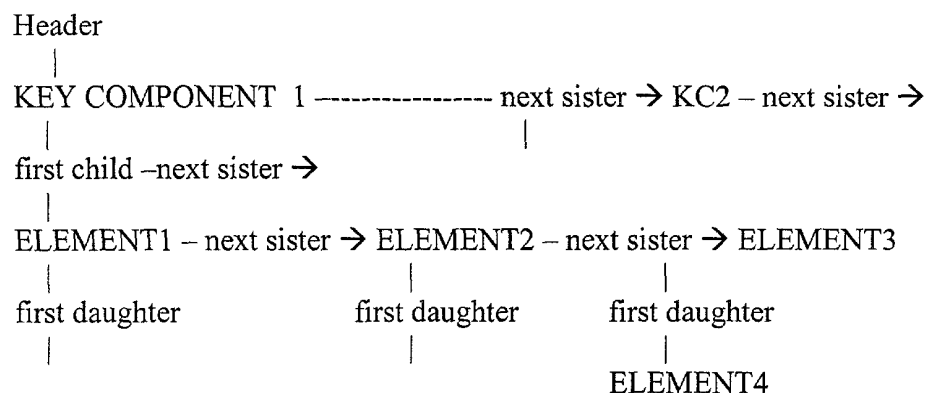15   Chart 1:

```
16              Header
17                |
18              KEY COMPONENT  1 ----------------- next sister → KC2 – next sister →
19                |                                        |
20              first child –next sister →
21                |
22              ELEMENT1 – next sister → ELEMENT2 – next sister → ELEMENT3
23                |                            |                       |
24              first daughter              first daughter          first daughter
25                |                            |                       |
26                                                                   ELEMENT4
27
28                      Chart 1.  Diagram data structure for Example
```

29

1   This linked tree structure enables elements to be easily moved, sorted, and

2   graphically rendered with a minimum of processing delay and memory usage. The

3   element class also contains information about whether or not an element is simply a

4   component of its parent or represents a dependent claim, as well as other information to

5   facilitate east manipulation of the data.

6   Drafting a patent application or technology assessment document using the

7   system and software according to the present invention consists of three primary steps by

8   a user:

9   • Setting up a new diagram is simply entering the client and invention names and

10   assigning the diagram a docket number, where appropriate, particularly if a

11   practitioner is drafting the application on behalf of a client/inventor.

12   • Entering diagram elements involves entering information from which a visual

13   diagram of the elements of the invention is automatically constructed in a

14   hierarchical relational diagram

15   • Entering diagram verbage involves drafting the text-based detailed description or

16   verbage of the specification section of the application for each key component,

17   subcomponent, and sub-subcomponent of the diagram.

18   In addition to the primary steps by the user(s) the user(s) may also input additional key

19   components, subcomponents, and/or sub-subcomponents. Furthermore, the user(s) may

20   manipulate or move any previously inputted key components, subcomponents, and/or

21   sub-subcomponents by shifting up and shifting down from the diagram, either via menu

22   or directly on the diagram moving elements up and down in order among similarly

23   ranked sibling elements. Shifting up and down conserves all sub-elements of the moved

1   element and automatically updates the diagram as well as any related text-based

2   description associated with each component. Dragging an element and dropping it on top

3   of another element will move the dragged to element and make it a sub-element of the

4   element it is dropped on. An element cannot be moved to one of its own child elements.

5   Dragging and dropping conserves all sub-elements of the moved element.

6   Entering additional specification and/or claims text or verbage may be done

7   directly in the text-based portion of the document by the user(s) at any time after the

8   initial text-based portion has been inputted by the user(s). The automatic claims

9   construction includes the creation of prefixes or preambles or other introductory

10   langauage, suffixes or termination language, transition or connective language relating

11   parts within the claim or between/among claims, all of which are editable by the user(s);

12   also, custom claim text or verbage may be input when prompted automatically or later

13   during editing by the user(s).

14   A draft patent application, including the diagram, specification, and claims, as

15   well as any figures, hyperlinks, prior art, etc. can be exported to an HTML or XML or

16   similar file.

17   Certain modifications and improvements will occur to those skilled in the art upon

18   a reading of the foregoing description. By way of example, alternative representations of

19   the hierarchical diagrammatic representation of components of a patent or technology are

20   possible without departing from the scope of the present invention. The vertical and

21   horizontal-based diagrams set forth hereinabove are simply one preferred embodiment set

22   forth for facilitating the description of the present invention. Also, a mulitplicity of users

23   may be working on the same patent application at the same time, via a connection of

1 computers or data processing devices that provides for intercommunication electronically

2 between the devices used by different users; integration of the work of the multiplicity of

3 users is provided automatically by the system and method of the present invention. Also,

4 application of the system and method according to the present invention may be

5 employed for patent and/or technology mapping to graphically or diagrammatically

6 identify and/or describe the scope and depth of a particular patent or patent portfolio,

7 grouping of patents, competitive intellectual property and technology and/or technology

8 distribution within any industry, market, or technology application. All modifications and

9 improvements have been deleted herein for the sake of conciseness and readability but

10 are properly within the scope of the following claims.

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